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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/710,021

06/14/2004

Erh-Kun Lai

13266-US-PA

4020

31561

7590

06/21/2005

EXAMINER

LANDAU, MATTHEW C

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE

7 FLOOR-1, NO. 100

ROOSEVELT ROAD, SECTION 2

TAIPEI, 100

TAIWAN

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

24

Office Action Summary	Application No.		Applicant(s)	
	10/710,021		LAI, ERH-KUN	
	Examiner		Art Unit	
	Matthew Landau		2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/14/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 21-28 in the reply filed on 6/9/2005, is acknowledged. Claims 1-20 have been cancelled thus making the restriction requirement moot.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 21-23 and 25-27 rejected under 35 U.S.C. 102(a) as being anticipated by Takahashi (US Pat. 6,642,586).

Regarding claims 21 and 25, Figures 1 and 6A-6H of Takahashi disclose a substrate 101; a plurality of gate structures arranged in rows and columns, each comprising: a gate dielectric layer 104 on the substrate; a gate 105 on the gate dielectric layer; two L-shaped trapping layers 110 on sidewalls of the gate and the substrate; and two conductive spacers 111 on the sidewalls of the gate, separated from the gate and the substrate by the two L-shaped trapping layers; a plurality of buried drains 112, each between two columns of gate structures; and a plurality of word lines 116 over the substrate, each contacting with the two conductive spacers and top of the gate of each of the gate structures in one row.

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Regarding claims 22 and 26, Figure 6H of Takahashi discloses each L-shaped trapping layer 110 comprises an ONO composite layer (col. 10, line 61).

Regarding claims 23 and 27, Figure 6H of Takahashi discloses the gate dielectric layer comprises silicon oxide (col. 10, lines 46-49).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Ebina et al. (US Pat. 6,413,821, hereinafter Ebina).

Regarding claims 24 and 28, the difference between Takahashi and the claimed invention is the word line, the gate, and the conductive spacers comprise doped polysilicon. Figure 2 of Ebina discloses a memory device comprising a gate 14/140, conductive spacers 20/30, and a word line 50, all formed from doped polysilicon (col. 7, lines 14-16, col. 8, lines 36-40, and col. 9, lines 61-64). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Takahashi by using doped polysilicon for the gates, conductive spacers, and word lines as taught by Ebina. It would have been obvious to use doped polysilicon for the gate and spacers for the purpose of increasing the conductivity. It would have been obvious to also use doped polysilicon for the word line for the purpose of simplifying the production process.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (571) 272-1731.

The examiner can normally be reached from 8:30 AM - 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should any questions arise regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Matthew C. Landau

Examiner

June 19, 2005

Tom Thomas
TOM THOMAS
SUPERVISORY PATENT EXAMINER